

Deep Space Station 46

"This day men were first sent through space and landed on a satellite. Mankind now can 'gaze at each other with a wild surmise' as to what future travel in space may bring."

Words expressed shortly after the first Moon landing
Prime Minister of Australia, Sir John Gorton

Three Lives, Two Locations, One Antenna

The life of antenna Deep Space Station 46 (DSS46) began in September 1965 with the selection of the Honeysuckle Creek (HSK) Tracking Station site as one of three locations in NASA's *Manned Space Flight Network* (the others located in Goldstone, California; and Madrid, Spain).

Designed specifically to support the lunar phase of NASA's Apollo project, the antenna started operation in December 1966 and supported the early unmanned test flights of the *Saturn V* rocket and tracked its first manned mission, *Apollo 7*, in October 1968.

Known at the time simply by the station designation HSK, the antenna relayed the first television images of Neil Armstrong's historic steps on the Moon on 21 July 1969.

Following the end of the Apollo and later *Skylab* programs, the Honeysuckle Creek station was converted for use in NASA's Deep Space Network and the antenna used for a new generation of robotic missions to explore the Solar System. It was also given a new designation - DSS44.

Until the closure of the Honeysuckle Creek Tracking Station in December 1981, the antenna supported many missions including those to Venus, Mars, Jupiter, Saturn and the Sun.

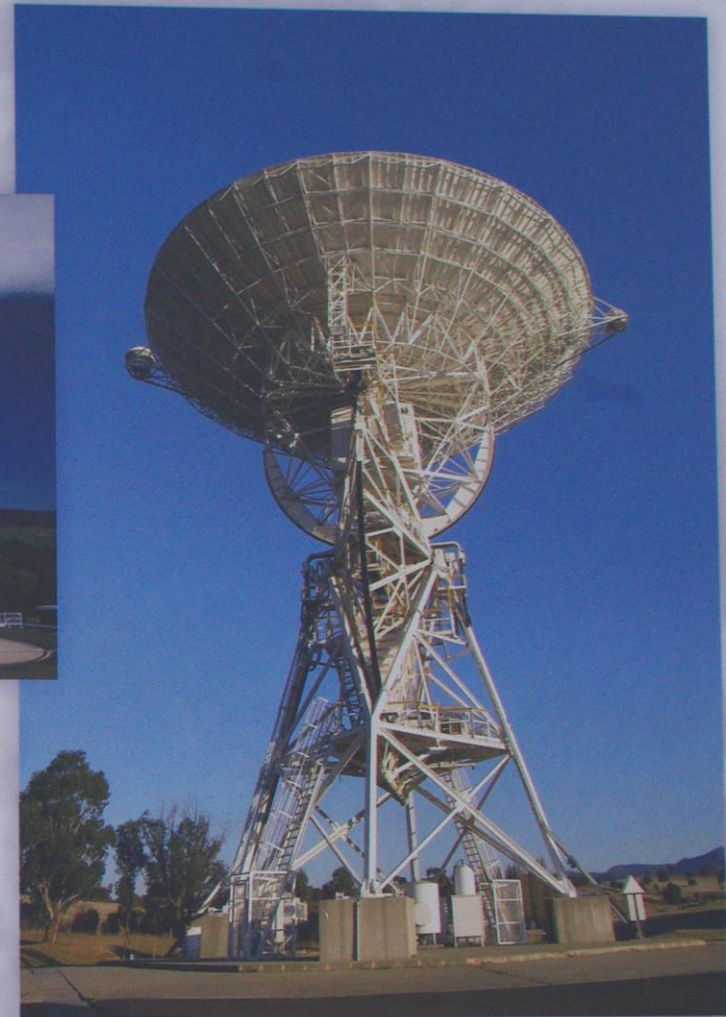
As part of a consolidation of facilities, the antenna was moved in 1983 to its current location at the Canberra Deep Space Communication Complex, Tidbinbilla. Re-designated DSS46 it was modified to expand its capabilities for early launch acquisition and went on to support NASA and international spacecraft missions studying the Sun, Earth, Moon and other planets.

DSS46 was retired from space tracking duties in late 2009 after more than 40 years of service.



The 26-metre antenna at the Canberra Deep Space Communication Complex - Deep Space Station 46 - and originally located at the Honeysuckle Creek Tracking Station (as DSS44) was declared as a National Engineering Heritage Landmark by Engineering Heritage Australia (Engineers Australia) on 20th July 2009.

The award recognises that this work of engineering has a history which is of national significance to the people of Australia.



Some Basic Statistics

- Dish size** - the antenna's parabolic 'dish' is 26-metres (85 feet) in diameter.
- Height** - in its current configuration, the antenna is 35 metres high when upright.
- Axes** - the antenna uses what is known as an X-Y axis mount. Two axes at right angles to each other enabling it to track fast moving spacecraft directly overhead without interruption.
- Accuracy** - the dish surface is accurate to within 1.2mm. the pointing accuracy is within 0.1 degrees.
- Motion** - turning rate of 5 degrees per second but limited to 3 degrees per second.

The small antennas mounted on the side of the main dish are Acquisition aids used in receiving signals of fast moving spacecraft through low Earth orbit. Typically these spacecraft would have recently launched and are commencing their outward journey to explore the solar system and beyond.